

DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
OFFICE ENGINEER, MS 43
1727 30TH STREET
P.O. BOX 168041
SACRAMENTO, CA 95816-8041
FAX (916) 227-6214
TTY (916) 227-8454



Flex your power!
Be energy efficient!

**** WARNING ** WARNING ** WARNING ** WARNING ****
This document is intended for informational purposes only.

Users are cautioned that California Department of Transportation (Department) does not assume any liability or responsibility based on these electronic files or for any defective or incomplete copying, excerpting, scanning, faxing or downloading of the contract documents. As always, for the official paper versions of the bidders packages and non-bidder packages, including addenda write to the California Department of Transportation, Plans and Bid Documents, Room 0200, P.O. Box 942874, Sacramento, CA 94272-0001, telephone (916) 654-4490 or fax (916) 654-7028. Office hours are 7:30 a.m. to 4:15 p.m. When ordering bidder or non-bidder packages it is important that you include a telephone number and fax number, P.O. Box and street address so that you can receive addenda.

October 25, 2005

05-SB-101-13.5/14.3
05-448104

Addendum No. 2

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in SANTA BARBARA COUNTY NEAR SUMMERLAND FROM 0.2 KM WEST OF EVANS AVENUE UNDERCROSSING TO 0.2 KM EAST OF SHEFFIELD DRIVE UNDERCROSSING.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on November 2, 2005.

This addendum is being issued to the Notice to Contractors and Special Provisions.

In the Special Provisions, Section 8-1.035, "ASPHALT," is added as attached.

In the Special Provisions, Section 10-1.39, "ASHPALT CONCRETE," the following paragraph is added after the second paragraph:

"The Contractor shall choose PG Grade 64-10 or AR Grade 8000 asphalt binder to be mixed with aggregate for Type B asphalt concrete. Asphalt shall conform to the provisions in "Asphalt," of these special provisions."

In the Special Provisions, Section 10-1.55, "ROCKFALL BARRIER," subsection "GENERAL REQUIREMENTS," in the second paragraph, the "5 kJ Kinetic energy" is revised to "54 kJ Kinetic energy."

In the Special Provisions, Section 10-1.55, "ROCKFALL BARRIER," subsection "GENERAL REQUIREMENTS," in the eighth paragraph, the following manufacturer is added to the end of the list:

"ROTEC INTERNATIONAL, LLC
P.O. Box 31536
Santa Fe, NM 87594-1536
Phone (505) 989-3353
Fax: (505) 984-8868"

In the Special Provisions, SECTION 11 (BLANK) is replaced with SECTION 11 "MODIFIED STANDARD SPECIFICATION SECTIONS," as attached.

Addendum No. 2
Page 2
October 25, 2005

05-SB-101-13.5/14.3
05-448104

To Proposal and Contract book holders:

Inquiries or questions in regard to this addendum must be communicated as a bidder inquiry and must be made as noted in the NOTICE TO CONTRACTORS section of the Notice to Contractors and Special Provisions.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the proposal.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This office is sending this addendum by confirmed facsimile to all book holders to ensure that each receives it. A copy of this addendum is available for the contractor's use on the Internet Site:

http://www.dot.ca.gov/hq/esc/oe/weekly_ads/addendum_page.html

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

REBECCA D. HARNAGEL, Chief
Office of Plans, Specifications & Estimates
Office Engineer

Attachments

8-1.035 ASPHALT

Asphalt shall conform to the provisions in Section 92 of Section 11-2, "Asphalts," of these special provisions and these special provisions.

The grade of asphalt to be used will be specified in the various sections of these special provisions.

If steam-refined paving asphalt (AR) is specified, the asphalt shall conform to the following:

Steam-Refined Paving Asphalts

Specification Designation	AASHTO Test Method	Viscosity Grade				
		AR 1000	AR 2000	AR 4000	AR 8000	AR 16000
Tests on Residue from RTFO Procedure: (California Test 346) ^a						
Absolute Viscosity at 60°C, pascal second ($\times 10^{-1}$)	T202	750- 1250	1500- 2500	3000- 5000	6000- 10000	12000- 20000
Kinematic Viscosity at 135°C, min., square meter per second ($\times 10^{-6}$)	T201	140	200	275	400	550
Pen. at 25°C, 100 g/5 sec., min.	T49	65	40	25	20	20
% of orig. Pen. ^b at 25°C, min.	—	—	40	45	50	52
Ductility at 25°C, mm, min.	T51	1000 ^c	1000 ^c	750	750	750
Tests on Original Asphalt:						
Flash Point, C.L.O.C.°C, min.	T48	205	215	225	230	235
Solubility in Trichloroethylene, % min.	T44	99	99	99	99	99

a TFO (AASHTO Test Method T179) may be used but the RTFO shall be the referee method.

b Original penetration as well as penetration after the RTFC loss will be determined by AASHTO Test Method T49.

c If the ductility at 25°C is less than 1000 mm, the material will be acceptable if its ductility at 15°C is more than 1000 mm.

If the Department determines the mass of asphalt from volumetric measurements in conformance with the provisions in Section 92-1.04 of Section 11-2, "Asphalts," of these special provisions, the Engineer will use the Conversion Table in Section 93, "Liquid Asphalts," of the Standard Specifications and the following table:

Average Mass and Volumes of Paving Asphalt

Grade	Liters per Tonne at 15°C	Grams per Liter at 15°C
AR-1000	997	1002
AR-2000	989	1011
AR-4000	981	1020
AR-8000	981	1020
AR-16000	981	1020
PG 58-22	981	1020
PG 64-10	981	1020
PG 64-16	981	1020
PG 64-28	981	1020
PG 70-10	981	1020
PBA 6a	981	1020
PBA 6a (mod)	981	1020
PBA 6b	981	1020
PBA 7	981	1020

SECTION 11. MODIFIED STANDARD SPECIFICATION SECTIONS

Asphalt shall conform to the provisions in this Section 11-2, "Asphalts." Section 92, "Asphalts," of the Standard Specifications shall not apply.

SECTION 92: ASPHALTS

92-1.01 DESCRIPTION

Asphalt shall consist of refined petroleum or a mixture of refined liquid asphalt and refined solid asphalt, prepared from crude petroleum. Asphalt shall be:

- A. Free from residues caused by the artificial distillation of coal, coal tar, or paraffin.
- B. Free from water.
- C. Homogeneous.

92-1.02 MATERIALS

92-1.02(A) GENERAL

The Contractor shall furnish asphalt in conformance with the Department's "Certification Program for Suppliers of Asphalt." The Department maintains the program requirements, procedures, and a list of approved suppliers at:

<http://www.dot.ca.gov/hq/esc/Translab/fpmcoc.htm>.

The Contractor shall ensure the safe transportation, storage, use, and disposal of asphalt.

The Contractor shall prevent the formation of carbonized particles caused by overheating asphalt during manufacturing or construction.

92-1.02(B) GRADES

Performance graded (PG) asphalt binder shall conform to the following:

Performance Graded Asphalt Binder

Property	AASHTO Test Method	Specification				
		Grade				
		PG 58-22 ^a	PG 64-10	PG 64-16	PG 64-28	PG 70-10
Original Binder						
Flash Point, Minimum °C	T48	230	230	230	230	230
Solubility, Minimum % ^b	T44	99	99	99	99	99
Viscosity at 135°C, ^c Maximum, Pa·s	T316	3.0	3.0	3.0	3.0	3.0
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T315	58 1.00	64 1.00	64 1.00	64 1.00	70 1.00
RTFO Test ^e , Mass Loss, Maximum, %	T240	1.00	1.00	1.00	1.00	1.00
RTFO Test Aged Binder						
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T315	58 2.20	64 2.20	64 2.20	64 2.20	70 2.20
Ductility at 25°C Minimum, cm	T51	75	75	75	75	75
PAV ^f Aging, Temperature, °C	R28	100	100	100	100	110
RTFO Test and PAV Aged Binder						
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T315	22 ^d 5000	31 ^d 5000	28 ^d 5000	22 ^d 5000	34 ^d 5000
Creep Stiffness, Test Temperature, °C Maximum S-value, MPa Minimum M-value	T313	-12 300 0.300	0 300 0.300	-6 300 0.300	-18 300 0.300	0 300 0.300

Notes:

- a. For use as asphalt rubber base stock for high mountain and high desert area.
- b. The Engineer will waive this specification if the supplier is a Quality Supplier as defined by the Department's "Certification Program for Suppliers of Asphalt."
- c. The Engineer will waive this specification if the supplier certifies the asphalt binder can be adequately pumped and mixed at temperatures meeting applicable safety standards.
- d. Test the sample at 3°C higher if it fails at the specified test temperature. G*/sin(delta) shall remain 5000 kPa maximum.
- e. "RTFO Test" means the asphaltic residue obtained using the Rolling Thin Film Oven Test, AASHTO Test Method T240 or ASTM Designation: D 2827.
- f. "PAV" means Pressurized Aging Vessel.

Performance based asphalt (PBA) binder shall conform to the following:

Performance Based Asphalt Binder

Property	AASHTO Test Method	Specification			
		Grade			
		PBA 6a	PBA 6a(mod)	PBA 6b	PBA 7
Absolute Viscosity (60°C), Pa·s(x10 ⁻¹) ^a Original Binder, Minimum RTFO Test Aged Residue ^b , Minimum	T202	2000 5000	2000 5000	2000 5000	1100 3000
Kinematic Viscosity (135°C), m ² /s(x10 ⁻⁶) Original Binder, Maximum RTFO Test Aged Residue, Minimum	T201	2000 275	2000 275	2000 275	2000 275
Absolute Viscosity Ratio (60°C), Maximum RTFO Test Visc./Orig. Visc.	—	4.0	4.0	4.0	4.0
Flash Point, Cleveland Open Cup, °C Original Binder, Minimum	T48	232	232	232	232
Mass Loss After RTFO Test, %	T240	0.60	0.60	0.60	0.60
Solubility in Trichloroethylene, % ^c Original Binder, Minimum	T44	Report	Report	Report	Report
Ductility (25°C, 5 cm/min), cm RTFO Test Aged Residue ^b , Minimum	T51	60	60	60	75
On RTFO Test Aged Residue, °C 1 to 10 rad/sec: SSD ^e ≥ 0 and Phase Angle (at 1 rad/sec) < 72°	†	—	35	—	—
On Residue from: PAV ^g at temp., °C Or Residue from Tilt Oven ^f (@113°C), hours	R28	100 36	100 36	100 36	110 72
^e SSD ≥ -115(SSV)-50.6, °C	†	—	—	—	25
Stiffness, Test Temperature, °C Maximum S-value, MPa Minimum M-value	T313	-24 300 0.300	-24 300 0.300	-30 300 0.300	-6 300 0.300

Notes:

- Absolute viscosity (60°C) will be determined at one sec⁻¹ using ASTM Designation: D 4957 with Asphalt Institute vacuum capillary viscometers.
- "RTFO Test Aged Residue" means the asphaltic residue obtained using the Rolling Thin Film Oven Test (RTFO Test), AASHTO Test Method T240 or ASTM Designation: D 2827.
- There is no requirement; however results of the test shall be part of the copy of test results furnished with the Certificate of Compliance.
- "Residue from Tilt Oven" means the asphalt obtained using California Test 374, Method B, "Method for Determining Asphalt Durability Using the California Tilt-Oven Durability Test."
- "SSD" means Shear Susceptibility of Delta; "SSV" means Shear Susceptibility of Viscosity.
- California Test 381.
- "PAV" means Pressurized Aging Vessel.

92-1.02(C) SAMPLING

The Contractor shall provide a sampling device in the asphalt feed line connecting the plant storage tanks to the asphalt weighing system or spray bar. The sampling device shall be accessible between 600 and 750 mm above the platform. The Contractor shall provide a receptacle for flushing the sampling device.

The sampling device shall include a valve:

- A. With a diameter between 10 and 20 mm.
- B. Manufactured in a manner that a one-liter sample may be taken slowly at any time during plant operations.
- C. Maintained in good condition.

The Contractor shall replace failed valves.

In the presence of the Engineer, the Contractor shall take 2 one-liter samples per operating day. The Contractor shall provide round friction top containers with one-liter capacity for storing samples.

92-1.03 APPLYING ASPHALT

Unless otherwise specified, the Contractor shall heat and apply asphalt in conformance with the provisions in Section 93, "Liquid Asphalts."

The Contractor shall apply paving asphalt at a temperature between 120° and 190°C. The Engineer will determine the exact temperature of paving asphalt.

92-1.04 MEASUREMENT

If asphalt is paid as a contract work item on a mass basis, the Department will measure asphalt by the tonne under the provisions for determining the mass for payment of liquid asphalt in Section 93, "Liquid Asphalt."

The Engineer will determine the mass of asphalt from volumetric measurements if the Contractor:

- A. Uses partial loads of asphalt.
- B. Uses asphalt at locations other than a mixing plant and no suitable scales are available within 35 km.
- C. Delivers asphalt meeting either of the following:
 - 1. In calibrated trucks and each tank is accompanied by its measuring stick and calibration card.
 - 2. In trucks equipped with a calibrated thermometer that determines the asphalt temperature at the time of delivery and equipped with a vehicle tank meter meeting Section 9-1.01, "Measurement of Quantities," for weighing, measuring, and metering devices.

If the Contractor furnishes asphalt concrete from a mixing plant producing material for only one project, the Department will determine the amount of asphalt from volumetric measurements by measuring the amount in the tank at the start and the end of the project provided the tank is calibrated and equipped with its measuring stick and calibration card. The Engineer will determine pay quantities in conformance with the following:

- A. Before converting the volume to mass, the Engineer will reduce the volume measured to that which the asphalt would occupy at 15°C.
- B. The Engineer will use the Conversion Table in Section 93, "Liquid Asphalts," and the following table:

Average Mass and Volumes of Paving Asphalt		
Grade	Liters per Tonne at 15°C	Grams per Liter at 15°C
PG 58-22	981	1020
PG 64-10	981	1020
PG 64-16	981	1020
PG 64-28	981	1020
PG 70-10	981	1020
PBA 6a	981	1020
PBA 6a (mod)	981	1020
PBA 6b	981	1020
PBA 7	981	1020